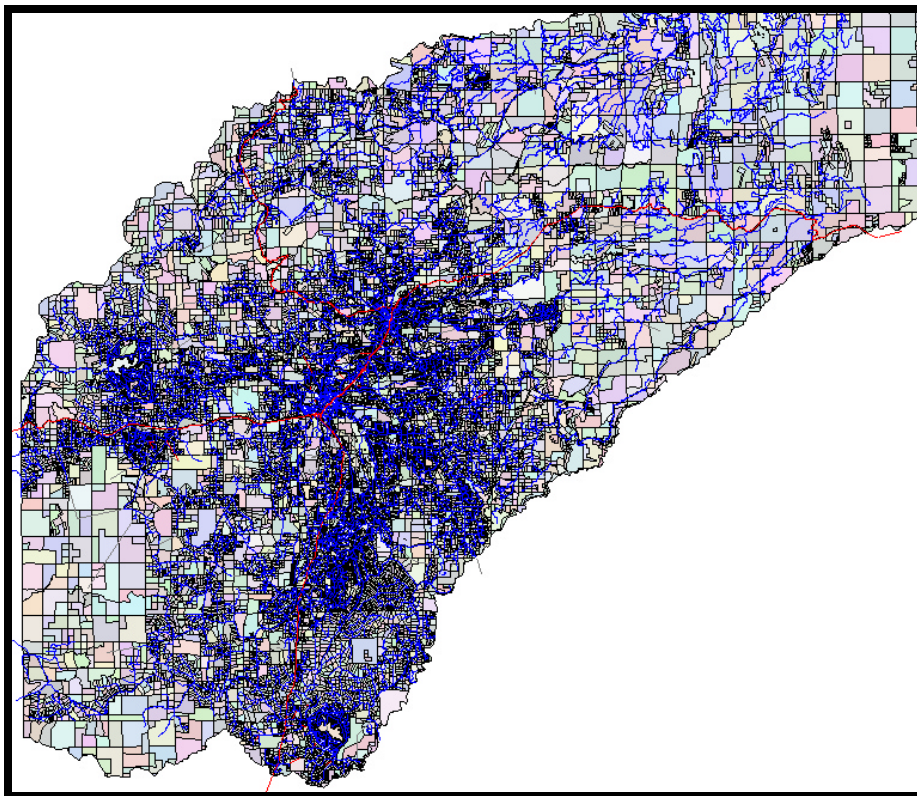


DRAFT REPORT



Viper / TP+ Traffic Model Coverage Area (west slope Nevada County)

TRAFFIC MODEL UPDATE MINUTP TO VIPER/TP+ CONVERSION AND LAND USE UPDATE WITH NEW CENSUS DATA AND INTERFACE WITH COUNTY'S GIS SYSTEM

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EXECUTIVE SUMMARY

Several changes and upgrades took place with the update of the Nevada County Transportation Commission's traffic model of the western slope of Nevada County. These changes included transfer of existing data from one software package to another more modern software package (MINUTP to Viper/TP+). This software upgrade facilitated several new benefits including:

- The ability to interface with the County's GIS system through industry standard GIS "shape file" exchange and spreadsheet exchange of data
- The ability to create PDF documents of model run data, facilitating email and web site use and review of data for those without specialized and expensive traffic modeling software
- More refined and improved traffic modeling options
- A much better graphical interface to the data, and ability to show GIS data alongside with traffic model data, creating a more understandable picture (with true shape roads, parcel boundaries, etc.)

These changes were implemented in this work effort, and the result is the construction of a new traffic model that builds upon the old, and improves the usability of data output from traffic model results and runs with a larger audience.



INTRODUCTION

The County's existing MINUTP traffic model had reached the pinnacle of its usefulness in the Year 2000. With newer software alternatives available to MINUTP (a DOS based system fairly unfriendly to Windows systems), and with the transition of Caltrans to use the newer software in the near future, as well as many neighboring counties, the NCTC felt that making the change would be a good idea for now and the future.

The purpose of this work effort was to take the existing MINUTP model and make a conversion of its data to work in the new Viper / TP+ software package that runs in Windows, and interfaces with the popular Arview GIS software packages (now in use by the County of Nevada and the NCTC, and City of Grass Valley). It was desired by the NCTC that new traffic analysis zones (TAZ's) be developed that matched the boundaries of the Census Tract maps, and block numbering areas. The new TAZ map was to be constructed with the aid of the County's GIS and Planning/Engineering departments.

It was also desired that the new model closely replicate the performance of the old model, and that special care be exercised in calibrating the new tool to updated traffic count data, and assessors data, etc. It was also desired that the participating government agencies have a part in the development of the model's land use databases, by providing raw and organized land use data for the model in the form of census data, parcel data, growth assumptions, etc. This information would be used to develop traffic models for the existing conditions, and for a variety of future conditions including, Year 2020, Year 2040, and Buildout conditions.



OVERVIEW, BACKGROUND, AND METHODOLOGY

A traffic model is a tool that enables the prediction of existing and future traffic scenarios, based upon a set of assumptions for land use quantities and roadway conditions. For example, with a traffic model is it possible to test future scenarios of land use development and find out what impacts in traffic volume is likely to take place on the roadway system. It is also possible to test new roadways and check their effectiveness or utilization. The model is a dynamic tool, with a base set of data that can be altered to check various scenarios.

The Change from MINUTP to Viper / TP+: Justification

The NCTC Nevada County west slope MINUTP model had reached its pinnacle of usefulness by the Year 1999/2000. Newer software packages were becoming available, but no new improvements or upgrades were being made to MINUTP, a DOS based system that did not interface with Windows or GIS systems. This made the presentation of the data and results difficult, and made peer review of data also cumbersome. The software company who sells MINUTP had made the decision to quit developing MINUTP upgrades, and it became a static product. This same company had made a push towards a new software program that had more powerful features and capabilities. This new software program called Viper / TP+ has a Microsoft Windows interface as well as GIS features that reads and writes industry standard "Shape files," which are commonly used in programs such as ArcView, ArcInfo, and AutoCAD (currently in use by government agencies in Nevada County, and most every other county throughout California). The NCTC also has the ArcView software and will be able to easily graphically read the data sets in the model. For example, one can visually zoom and pan their way to a certain street and area in the County, the City of Grass Valley, or Nevada City, and with the simple click of a mouse, instantly see a pop up window containing the land use totals that are in a specific TAZ (traffic analysis zone). In this manner it can be much easier to verify data used in traffic studies, planning studies, etc. The more verifiable a model is, the higher the confidence in its results. For these reasons, among others, the traffic model was upgraded from MINUTP to Viper / TP+.

Methodology: New Revised Traffic Analysis Zones

The NCTC traffic model data sets were retained and transferred in tact as much as is possible. A direct translation was not entirely possible, due to the goal to revise the traffic analysis zones in the model to match the Census Tract block numbering area (BNA) boundaries contained in the computerized Tiger files in the County's GIS system. We first obtained a copy of the new Year 2000 Census Tract BNA boundary shape files from the



County's GIS system. This information was loaded into our ArcView software and the BNA shapes were aggregated in the software as appropriate into larger Traffic Analysis Zones (TAZ). Many of the new TAZ matched the boundaries in the older TAZ, because they were already conformant with the Census Tract BNA shapes.

In many cases, the TAZ boundary matched exactly the BNA boundaries, as the BNA was typically the smallest area that could become a TAZ. In a few cases where the BNA was very large (such as the BNA which contained the Nevada Union High School and Sierra College campuses), the BNA was further subdivided to account for significant differences in traffic assignment (the High School accesses Ridge Road exclusively, and the college accesses Sierra College Drive exclusively). As a general rule, the BNA was not to be subdivided except in very few cases. This was to keep the TAZ data as compatible as possible with the Census Tract data boundaries, except where it was detrimental to the proper operation of the traffic model. In this manner, it is much easier to verify and compare land use data in the traffic model to existing and future Census data.

Methodology: Updated Street Network and Assessors Data

The street network in the new model was built entirely from the County's GIS Roadway shape file data. In this manner, the roadways in the model contain the same visual / geographic Global Positioning Satellite (GPS) surveyed data features, as well as other data associated with the street network links (street name, surface type, functional class, lanes, etc). To this data, we also added new data relevant to a traffic model, such as roadway lane capacity, speeds, pm peak count, ADT count, Terrain, and any other data deemed relevant in the future. The model is upgradeable to be able to add new features and fields of data at any time.

In addition to creating a new street network which visually contains every single road in the County, we utilized the County Assessor's Parcel data set to determine how many homes were in each TAZ, how many acres of various land use, etc. This data was supplied by the County and used in the ArcView software to view visually, as well as in Excel spreadsheets to sort and further organize the data into a format useable by the Viper / TP+ traffic model. The end result was a DBase IV format spreadsheet file of dwelling unit and acreage totals by TAZ, which is interchangeable with the County's GIS system, and readable with ArcView software with graphical TAZ map overlays.

Methodology: Calibration and Validation

The NCTC traffic model created using MINUTP had been previously calibrated and validated, and even updated several times over the six year period of its



use for various NCTC study projects. The model had been verified previously with every major project for which it was used, including the Empire Interchange and SR 20 Corridor Study, the Mitigation Fee and Capital Improvement Program studies, etc.

The new model was calibrated in the same manner as its MINUTP predecessor, the land use data was assembled and trip generation rates supplied, and traffic was assigned to the new street network operative in the Viper / TP+ software program. The initial results needed revision or calibration adjustments. In the initial stages, mistakes and typos were found and corrected in the data sets. After the data was “cleaned up” and verified, it was still necessary to further adjust various traffic model parameters, such as the friction factor curves, roadway speeds, and trip generation rates, over a several month period of time, until the results of traffic projections in the new model closely replicated existing conditions. The same procedures used to develop and calibrate the MINUTP model were utilized in the calibration of the new Viper / TP+ traffic model. The TP+ model is essentially a similar “engine” under the hood (the gravity model), but it has a better graphical interface via the Viper program, which allows for better inspection and verification of data and model output.

The traffic projections from the model were compared within the traffic model software itself, to the existing traffic count data supplied by the County of Nevada Engineering Staff. The existing traffic count data is now a part of the traffic model street network data set, and comparisons between count data and projection results are easily made within the software. Generally speaking, the new traffic model calibration output matches fairly closely to the traffic count data. The Caltrans guidelines for traffic model performance is that major freeways or highways should match within 10% to 25% of the existing count (depending on the magnitude of the volume). For example, a major urban freeway system with over 100,000 ADT should match to within 10% of the traffic model projection. A minor highway with 10,000 ADT could have a margin of error as high as 25% and still be considered within the acceptable margin of error. Minor roadways within the County would have an even higher tolerance level (between 25% and 60% error). These Caltrans guidelines are “generous” pertaining to margins of error, primarily because many traffic models are not detailed, and the results from a model limited in street network and land use specifics can yield more broad-brushed results. The NCTC new Viper / TP+ traffic model is highly detailed in street network, and yields better traffic projections as a result. All streets in the new traffic model meet the specific Caltrans criteria for calibration and validation, as will be detailed in the next section.



MODEL PERFORMANCE AND COMPARISON TO OLD

The new NCTC traffic model performance was compared with the older traffic model, and found to be more accurate, more complete, more compatible with Census data, and yielding better simulation of existing traffic conditions.

Part of the reason for these improvements has to do with the better data sets that were available at the outset of this work effort by virtue of the County's GIS system containing assessor's parcel data, GPS level accuracy in surveyed road data and distances, as well as more refinement in trip generation rates for various land use types in the model. Previously the model was limited to only 13 trip generation rates for attractions, whereas the new software has no such limitations, and we utilized 31 trip generation rates to better account for fast food development, service stations, and restaurant uses, etc. The result has been much more accurate trip generation and assignment in areas such as the Brunswick Basin where a variety of complex commercial land uses are in place.

Table I has been prepared to report the results of the traffic model calibration and validation as it relates to trip generation and trip assignment onto the street network. The model is supposed to perform within certain parameters in this area, and Caltrans has prepared guidelines for this reason. The new NCTC Viper / TP+ model performs well within the Caltrans guidelines, just as did it's MINUTP predecessor, but the overall results with the new model are actually better. This is partially due to the better trip generation rate accuracy that is now possible with the new software.

Table I has a few lines where the percentage error was greater than the guidelines, however, there are additional guidelines that when traffic volumes are very low, they are relatively insignificant to the overall performance of the model. In other words, it is expected that a few minor streets will have what appears to be large percentage differences from counts, but when the actual volume is considered, it is insignificant. For example, on Idaho Maryland Road east of Brunswick the traffic model volume was only 64 vehicles per hour (VPH) but the traffic count was 180 vph. This difference of 116 vph is fairly small, and especially when it is considered that the traffic volume along Idaho Maryland is very small as well. Over 92% of the links summarized perform at acceptable levels, and the 8% which do not are low volume and less significant roads.



Table I

Calibration Results of Traffic Model Performance to Existing Counts

| ROAD & LOCATION | Year 2000 ADT Counts | Peak Hour Counts | Traffic Model | % Error | OK? |
|-------------------------------------|-------------------------|---------------------|------------------|---------|-----|
| ADAM AVE. N OF SQUIRRELL CRK | 1400 | 126 | 73 | 42% | Yes |
| ALLISON RANCH-S McCOURTNEY | 850 | 77 | 65 | 15% | Yes |
| ALTA SIERRA DR. E. OF HWY 49 | 6500 | 585 | 470 | 20% | Yes |
| ALTA SIERRA DR. W. OF DOG BAR RD. | 2650 | 239 | 355 | -49% | Yes |
| ALTA ST. SE. OF RIDGE RD. | 3400 | 306 | 130 | 58% | No |
| AUBURN RD. S. OF McCOURTNEY RD. | 1800 | 162 | 354 | -119% | No |
| BANNER LAVA CAP W. OF GAYLE LN. | 4200 | 378 | 156 | 59% | No |
| BANNER LAVA CAP W. OF GRACIE RD. | 2300 | 207 | 53 | 74% | No |
| BANNER LAVA CAP W. OLD TUNNEL | 4100 | 369 | 240 | 35% | Yes |
| BANNER LAVA CAP/E I.MARYLAND | 1200 | 108 | 86 | 20% | Yes |
| BANNER LAVA CAP/NW I. MARYLAND | 1250 | 113 | 70 | 38% | Yes |
| BITNEY SPRINGS RD N. OF R&R HWY | 3000 | 270 | 285 | -6% | Yes |
| BITNEY SPRINGS-N NEWTOWN | 1200 | 108 | 152 | -41% | Yes |
| BITNEY SPRINGS/SE PLEASANT VALLEY | 700 | 63 | 38 | 40% | Yes |
| BOULDER ST. @ E. NEV CTY LIMIT | 4500 | 405 | 350 | 14% | Yes |
| BRUNSWICK RD N. OF HWY 174 | 8200 | 738 | 502 | 32% | Yes |
| BRUNSWICK RD NW. OF E. BENNETT | 11000 | 990 | 627 | 37% | Yes |
| BRUNSWICK RD NW. OF LOMA RICA DR | 15000 | 1350 | 1037 | 23% | Yes |
| BRUNSWICK RD OVERXING TOTAL | 27500 | 2475 | 2296 | 7% | Yes |
| BRUNSWICK RD SE. OF E. BENNETT RD | 9000 | 810 | 526 | 35% | Yes |
| BRUNSWICK/N I.MARYLAND | 12500 | 1125 | 1100 | 2% | Yes |
| BRUNSWICK/S I.MARYLAND | 14500 | 1305 | 1131 | 13% | Yes |
| COMBIE RD. E. OF HWY 49 | 16000 | 1440 | 1560 | -8% | Yes |
| COMBIE RD. S OF SHOPPING CENTER | 2000 | 180 | 190 | -6% | Yes |
| COMBIE RD. SE. OF MAGNOLIA | 6000 | 540 | 495 | 8% | Yes |
| DOG BAR RD. NW. OF ALTA SIERRA | 6000 | 540 | 725 | -34% | Yes |
| DOG BAR RD. S. OF ALTA SIERRA | 4000 | 360 | 340 | 6% | Yes |
| DOG BAR RD. S. OF LABARR MDWS RD. | 7000 | 630 | 800 | -27% | Yes |
| DOG BAR RD. SE OF MAGNOLIA RD. | 1200 | 108 | 250 | -131% | No |
| E.BENNETT RD E GV CITY LIMIT | 2200 | 198 | 224 | -13% | Yes |
| E.BENNETT RD SW BRUNSWICK RD | 1200 | 108 | 101 | 6% | Yes |
| E.EMPIRE ST E GRASS VALLEY CITY | 4200 | 378 | 547 | -45% | Yes |
| GARDEN BAR RD S. OF WOLF RD. | 1000 | 90 | 81 | 10% | Yes |
| GOLD FLAT RD SE. OF HOLLOW WY | 4500 | 405 | 309 | 24% | Yes |
| GOLD FLAT RD. S. OF GRACIE RD | 2500 | 225 | 203 | 10% | Yes |
| GRACIE RD. NW. OF BANNER LAVA CAP | 1050 | 95 | 112 | -19% | Yes |
| GRACIE RD. SE. OF GOLD FLAT RD | 1900 | 171 | 112 | 35% | Yes |
| GREENHORN RD NE. OF BRUNSWICK RD | 3500 | 315 | 149 | 53% | No |
| IDAHO-MARYLAND RD W. OF BANNER L.C. | 1200 | 108 | 75 | 31% | Yes |
| IDAHO-MARYLAND/E BRUNSWICK | 2000 | 180 | 64 | 64% | No |
| INDIAN SPRINGS RD W. OF McCOURTNEY | 1500 | 135 | 74 | 45% | Yes |
| JOERSCHKE DR SE. OF NEV CTY HWY | 3000 | 270 | 250 | 7% | Yes |
| LaBARR MEADOWS RD E. OF HWY 49 | 700 | 63 | 74 | -17% | Yes |
| LaBARR MEADOWS RD N. OF DOG BAR RD. | 7500 | 675 | 780 | -16% | Yes |
| LaBARR MEADOWS RD SW. OF DOG BAR | 1200 | 108 | 124 | -15% | Yes |
| LIME KILN RD SE. OF McCOURTNEY | 1450 | 131 | 137 | -5% | Yes |
| LIME KILN W. OF HWY 49 | 3000 | 270 | 228 | 16% | Yes |
| LOMA RICA DR E. OF BRUNSWICK RD | 7000 | 630 | 624 | 1% | Yes |
| MAGNOLIA RD E. OF LK OF PINES | 5000 | 450 | 323 | 28% | Yes |
| McCOURTNEY RD S. OF INDIAN SPRINGS | 2200 | 198 | 195 | 2% | Yes |



Table I Continued...

| | Yr 2000 ADT | Peak Hour | Model | % Error | OK? |
|--------------------------------------|-------------|-----------|-------|---------|-----|
| McCOURTNEY RD SW. OF BRIGHTON ST. | 9000 | 810 | 740 | 9% | Yes |
| McCOURTNEY RD---NE INDIAN SPRINGS | 2400 | 216 | 183 | 15% | Yes |
| McCOURTNEY-W AUBURN RD | 6000 | 540 | 372 | 31% | Yes |
| MOONEY FLAT RD N. OF HWY 20 | 700 | 63 | 94 | -49% | Yes |
| MOUNT OLIVE RD NE. OF DOG BAR RD | 100 | 9 | 30 | -233% | No |
| NEV CTY HWY SW. OF BRUNSWICK RD | 13100 | 1179 | 1240 | -5% | Yes |
| NEV. CTY HWY NE. OF BRUNSWICK RD | 20000 | 1800 | 1508 | 16% | Yes |
| NEV. CTY HWY SW OF BANNER LAVA CAP | 7000 | 630 | 544 | 14% | Yes |
| NEV.CTY HWY N OF NEV CTY LIMIT | 8000 | 720 | 808 | -12% | Yes |
| NEWTOWN RD NE. OF BITNEY SPRINGS | 1000 | 90 | 80 | 11% | Yes |
| NEWTOWN RD SW. OF HWY 49 | 1600 | 144 | 80 | 44% | Yes |
| OLD TUNNEL RD S. BANNER LAVA CAP | 3500 | 315 | 287 | 9% | Yes |
| OLD TUNNEL RD. N. OF BRUNSWICK RD | 4200 | 378 | 361 | 4% | Yes |
| PENN VALLEY DR-- SE EASY ST | 4000 | 360 | 512 | -42% | Yes |
| PENN VALLEY DR W. OF SPNCVLL RD | 4000 | 360 | 260 | 28% | Yes |
| PENN VALLEY/SW HWY 20(E END) | 5300 | 477 | 421 | 12% | Yes |
| PLEASANT VALLEY N-WILDFLOWER | 2400 | 216 | 231 | -7% | Yes |
| PLEASANT VALLEY RD N. OF HWY 20 | 12000 | 1080 | 1080 | 0% | Yes |
| PLEASANT VALLEY RD S. OF BITNEY SPR | 1100 | 99 | 121 | -22% | Yes |
| PLEASANT VALLEY RD W. OF HWY 49 | 800 | 72 | 83 | -15% | Yes |
| QUAKER HILL CROSS RD NE. OF RED DOG | 2000 | 180 | 157 | 13% | Yes |
| RATTLESNAKE RD NE. OF DOG BAR RD | 1100 | 99 | 64 | 35% | Yes |
| RATTLESNAKE RD S. OF HWY 174 | 3000 | 270 | 155 | 43% | Yes |
| RED DOG RD-NW PARK AVE | 4500 | 405 | 333 | 18% | Yes |
| RED DOG SE PASQUALE | 3000 | 270 | 194 | 28% | Yes |
| RIDGE RD E. OF R&R HWY | 5000 | 450 | 657 | -46% | Yes |
| RIDGE RD SW. OF HUGHES RD. | 8500 | 765 | 810 | -6% | Yes |
| RIDGE RD W. OF NEV CTY HWY | 7500 | 675 | 545 | 19% | Yes |
| ROUGH & READY HWY NW. OF ADAM ST. | 6000 | 540 | 661 | -22% | Yes |
| ROUGH & READY HWY W. OF BITNEY SPRGS | 4500 | 405 | 305 | 25% | Yes |
| ROUGH & READY HWY W. OF RIDGE RD | 7500 | 675 | 661 | 2% | Yes |
| SQUIRREL CREEK RD W. OF R&R HWY | 3200 | 288 | 274 | 5% | Yes |
| SQUIRREL CREEK RD-W ADAMS | 2300 | 207 | 111 | 46% | Yes |
| SR 20 North of Empire | 35000 | 3150 | 3310 | -5% | Yes |
| SR 20 North of Uren | 7500 | 675 | 553 | 18% | Yes |
| SR 20 West of Brighton | 16000 | 1440 | 1357 | 6% | Yes |
| SR 20 West of Penn Valley | 6700 | 603 | 654 | -8% | Yes |
| SR 49 East of Newtown | 6300 | 567 | 577 | -2% | Yes |
| SR 49 North of Tyler Foote | 3300 | 297 | 320 | -8% | Yes |
| SR 49 South of Combie | 28000 | 2520 | 2372 | 6% | Yes |
| SR 49 North of Combie | 25000 | 2250 | 2450 | -9% | Yes |
| SR 49 South of Empire | 34000 | 3060 | 3030 | 1% | Yes |
| SR 49 West of SR 20 | 11000 | 990 | 1071 | -8% | Yes |
| SUTTON @ GRASS VALLEY CITY | 7000 | 630 | 348 | 45% | Yes |
| SUTTON-E OF BRUNSWICK WB & EB | 11000 | 990 | 990 | 0% | Yes |
| SUTTON-W OF BRUNSWICK WB& EB | 11500 | 1035 | 887 | 14% | Yes |
| TYLER-FOOTE CROSS RD NE. OF 49 | 2000 | 180 | 126 | 30% | Yes |
| WASHINGTON RD NE. OF HWY 20 | 400 | 36 | 44 | -22% | Yes |
| WILLOW VALLEY RD @NEV CITY LIMIT | 2500 | 225 | 208 | 8% | Yes |
| WOLF RD S. OF LIME KILN | 500 | 45 | 49 | -9% | Yes |
| WOLF RD W. OF HWY 49 (W. OF | 3500 | 315 | 430 | -37% | Yes |
| | | 55103 | 51980 | 6% | |

Source: NCTC Traffic Year 2000 Viper / TP+ Model



DATA SETS AND DATA PRESENTATION

The detailed data for the Year 2000 Viper / TP+ traffic model conversion can be found at the www.prismworld.com web site under the NCTC Traffic Model Update section, which also offers the source shape files for viewing with the ESRI ArcView software. The land use totals for the Years 2000, 2020, 2040 are displayed in the following table.

Table II Land Use Totals by Category

| Land Use Category | Year 2000 | Year 2020 | Year 2040 | Units |
|-------------------|-----------|-----------|-----------|----------------|
| R1_SF | 6800 | 8469 | 9033 | Dwelling Units |
| R2_MF | 1873 | 2213 | 3391 | Dwelling Units |
| RR_RUR | 11047 | 17411 | 22820 | Dwelling Units |
| AF_LOW | 7831 | 10876 | 12194 | Dwelling Units |
| RETIRE | 122 | 176 | 176 | Dwelling Units |
| RETLOW | 0 | 0 | 0 | Dwelling Units |
| MOBILEHOME | 1005 | 1243 | 1423 | Dwelling Units |
| COMM | 73 | 103 | 146 | Acres |
| INDUST | 17 | 24 | 34 | Acres |
| EMPCEN | 74 | 104 | 148 | Acres |
| TOURIST | 37 | 52 | 74 | Acres |
| BUSDIST | 90.8 | 128 | 182 | Acres |
| LITEIND | 219 | 309 | 438 | Acres |
| OFFICEPRO | 112 | 158 | 224 | Acres |
| PUBLIC | 33 | 47 | 66 | Acres |
| LODGING | 20 | 28 | 40 | Acres |
| HIGH SCHOOL | 151 | 213 | 302 | Acres |
| COMM_HI | 142 | 200 | 284 | Acres |
| PARK | 159 | 224 | 318 | Acres |
| CHURCH | 37 | 52 | 74 | Acres |
| BP | 19 | 27 | 38 | Acres |
| FASTFOOD | 21 | 30 | 42 | Acres |
| DENNYS | 7 | 10 | 14 | Acres |
| BLACKANGUS | 0 | 0 | 0 | Acres |
| OFFICEGEN | 2 | 3 | 4 | Acres |
| MINIWARE | 23 | 32 | 46 | Acres |
| GASSTATION | 6 | 8 | 12 | Acres |
| GASFFOOD | 2 | 3 | 4 | Acres |
| FIRESTA | 6 | 8 | 12 | Acres |
| ELEMSCHOOL | 98 | 138 | 196 | Acres |
| MIDSCHOOL | 67 | 94 | 134 | Acres |
| QUIKSTOP | 1 | 1 | 2 | Acres |
| EMPIREMINE | 746 | 1052 | 1492 | Acres |
| HOSPITAL | 13 | 18 | 26 | Acres |
| GOLFHOLES | 18 | 25 | 36 | Holes |
| SIERRACOL | 98 | 138 | 196 | Acres |
| RAQUETCLUB | 4 | 6 | 8 | Acres |
| CONVALESNT | 3 | 4 | 6 | Acres |



Using the ArcView software, it is possible for the user to graphically find land use data by TAZ, by street, or by some other visual landmark.

The Year 2000 land use data has the following totals:

- 28,678 DU in the new model compared to 28,240 DU in the previous MINUTP model, an increase of 438 DU. Some differences will be due to new homes built since the last model update, and possible corrections to assessors data and assumptions for population conversions, etc.
- Other Commercial / Industrial / Service totals as shown in Table II

